

# **ATLS (Advanced Trauma Life Support)**

Dr.isavi

# Three underlying concepts of ATLS program :

1-Treat the greatest threat to life first

2-The lack of a definite diagnosis should never impede the application of an indicated treatment

3-A detailed history was not essential to begin the evaluation of an acutely injured patient

# Specific principles govern the management of trauma patients in ED:

- 1-Organized team approach
- 2-priorities
- 3-Assumption of the most serious injury
- 4-Treatment before diagnosis
- 5-Thorough examination
- 6-Frequent reassessment
- 7-Monitoring

# Inhospital phase clinical process:

1-Systemic, organized approach to seriously injured patients is mandatory

2-The primary and secondary surveys should be repeated frequently

3-In the actual clinical situation, many of these activities occur in parallel or simultaneously.

# Systemic, organized approach to seriously injured patients is mandatory

Preparation

Triage

Primary survey (ABCDEs)

Resuscitation

Adjuncts to primary survey & resuscitation

Secondary survey (Head to toe Evaluation)

Adjuncts to secondary survey

# Organized Team Approach:

1-Team Captain

2-Procedures by other physician team members.

3-Nurses.

# Priorities In Management and Resuscitation

1-High-priority areas

2-Low-priority areas

# Inhospital Phase ATLS



# PREPARATION

- 1-Resuscitation area
- 2-Proper airway equipment
- 3-Warmed IV crystalline solutions
- 4-Monitoring capabilities
- 5-Summon extra medical assistance
- 6-Prompt response by lab and radiology personnel
- 7-Transfer route
- 8-Periodic review
- 8-Standard precautions

# TRIAGE

Based on the ABCDE priority

# PRIMARY SURVEY

**Airway with Cervical spine protection**

**Breathing and ventilation**

**Circulation with hemorrhage control**

**Disability: Neurologic status**

**Exposure/ Environmental control**

**Foley /FAST**

# **Airway Maintenance with Cervical Spine Protection**

**What are the problems that lead to  
airway compromise ?**

**What are the indications for definite  
airway ?**

# Indications For Definite Airway

## 1-Need for Airway Protection

a.GCS<8

b.severe maxillofacial fracture

c.risk for aspiration

d.risk for obstruction

## 2-Need for Ventilation

# 2-Need for Ventilation

1-Apnea

2-Inadequate respiratory effort

a.tachypnea

b.hypoxia

c.hypercarbia

d.cyanosis

3-Severe closed head injury with need for  
hyperventilation

# Assessment:

1-Ascertain patency

2-Rapidly assess for airway obstruction

3-Foreign bodies, facial / mandibular / tracheal / laryngeal fractures

# Management:

1-Chin lift / jaw thrust maneuver

2-Clear the airway of FB

3-Insert an orotracheal / nasopharyngeal airway

4-Establish a definitive airway

Orotracheal / nasotracheal intubation

Surgical cricothyroidotomy



# Immobilization of the c-spine

## Important Notes:

1-NE does not exclude a cervical spine injury

2-Assume a cervical spine injury in any patient with multisystem trauma, especially with an altered level of consciousness or a blunt injury above the clavicle

# Breathing and Ventilation

**What are the injuries that may acutely impair ventilation in the primary survey?**

# Injuries that should be identified in the Primary survey

- . Tension pneumothorax
- . Flail chest with pulmonary contusion
- . Massive hemothorax
- . Open pneumothorax

# Assessment

# Inspection / palpation /Auscultation / Percussion

1-Expose the neck and chest

2-Respiratory rate and depth

3-Inspect and palpate: tracheal deviation ?

4-symmetrical chest movement ? use of accessory muscles ? signs of injury ? subcutaneous emphysema ?

5-Cyanosis ?

6-Auscultate the chest

6-Percussion : dullness? hyperresonance?

# Management

- 1-Administer high concentrations of oxygen
- 2-Ventilate with BVM
- 3-Alleviate tension pneumothorax : needle decompression / Place chest tube

# **Circulation with Hemorrhage Control**

**What are the elements that provide  
the information about the  
hemodynamic status of the injured  
patients.**

# These elements are

1. Level of consciousness
2. Skin color
3. pulse ( quality, rate, regularity)



**What are the injuries that may acutely impair circulation status ?**

# These injuries are :

- 1-External/internal bleeding with hypovolemic shock
- 2-Massive hemothorax
- 3-Cardiac tamponade

# Assessment:

- 1-Identify source of external hemorrhage
- 2-Identify potential source(s) of internal hemorrhage /
- 3-Pulse / skin color, capillary refill / Blood pressure

# Management

- 1-Apply direct pressure to external bleeding site.
- 2-Internal hemorrhage ? Need for surgical intervention ?
- 3-Establish IV access / central line / IO
- 4-Fluid resuscitation / blood replacement

# Disability

# Assessment

**1-Level of consciousness in the AVPU scale**

**Alert**

**Voice elicits response**

**Pain elicits response**

**Unresponsive**

**2-GCS**

**3-Pupils size, equality and reaction**

# Management

- 1-Intubation and allow mild hyperventilation
- 2-Administer IV mannitol.
- 3-Arrange for brain CT

# Important notes

1-CT is contraindicated when the patient is hemodynamically unstable

2-A decrease in the level of consciousness may due to:

- Decreased cerebral oxygenation (A,B)

- Decreased cerebral perfusion (C)

- Direct cerebral injury (D)

- Alcohol / drugs

- Always rule out hypoxemia and hypovolemia first.

3-Reevaluation



# Exposure / Environment Control

1. Completely undressed the patient.
2. Prevent hypothermia
- 3- Injured patients may arrive in hypothermic condition
- 4- Log-roll

# RESUSCITATION

To reverse immediately life-threatening situations and maximize patient survival

# TREATMENT PRIORITY

NECESSARY PROCEDURE

# Airway

1-Jaw thrust/chin lift/

2-Suction

3-Intubation

4-Cricothyroidotomy

( with protection of C-spine )

# Breathing/Ventilation/oxygenation

- 1-Chest needle decompression
- 2-Tube thoracostomy
- 3-Supplemental oxygen
- 4-Seal open pneumothorax

# Circulation/hemorrhage control

1-IV line/ central line

2-Venous cutdown

3-Fluid resuscitation/Blood transfusion

4-Thorocostomy for massive hemothorax

5-Pericardiocentesis for cardiac tamponade

# Disability

1-Burr holes for trans-tentorial herniation

2-IV manitol

# Exposure/Environment

Warmed crystalloid fluid

Temperature



# ADJUNCTS TO PRIMARY SURVEY AND RESUSCITATION

Electrocardiographic Monitoring.

Urinary Catheter

Gastric Catheter

Monitoring

ABG

Pulse oximeter

Blood pressure

X-rays

AP CXR

AP pelvis

C-spine

Diagnostic peritoneal lavage

Abdominal ultrasonography (FAST)